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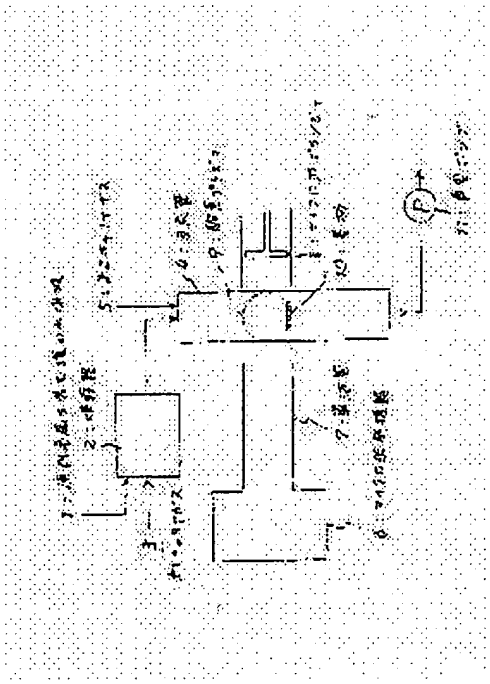
(54) PRODUCTION OF THIN OXIDE CERAMIC SUPERCONDUCTING FILM

(57)Abstract:

PURPOSE: To form a thin oxide ceramic superconducting film by a simple process by spraying an aq. soln. of salts contg. metals as starting materials, feeding the resulting mist into oxygen plasma and depositing formed oxide ceramic on a substrate.

CONSTITUTION: An ag. soln. 1 of salts contg. metals as starting materials is introduced into a sprayer 2 and sprayed by ultrasonic spraying or other method to form mist of about 0.3-2.0μm particle size. This mist is introduced into the upper part of a reaction tube 4 with a first carrier gas 3 and a second carrier gas 5 is also introduced into the upper part. At this time, gaseous oxygen for generating oxygen plasma is incorporated into one or both of the carrier gases 3, 6 and the tube 4 is evacuated by a vacuum pump 11. Microwaves from a microwave oscillator 6 are guided with a waveguide 7, passed through the tube 4 and returned to the tube 4 by a plunger 8 to generate oxygen plasma 9. A thin oxide ceramic film having superior superconducting characteristics is formed on a substrate 10 set under the oxygen plasma generating region with high productivity.



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